

Is the mid-day meal enough?

Malnutrition is a growing public health challenge in today's age, with undernutrition being the major issue of concern [1]. Although much literature may be found related to undernutrition among under-five children and pregnant women, there is still a paucity of understanding the undernutrition scenario among adolescents, especially in middle and low income countries [2]. Focus on adolescent health and nutrition, though very recent topic, is now gaining momentum in terms of research. Although adolescents form 21.8% of the total population [1], this phase of rapid growth and development is often ignored in terms of their physical, mental, and nutritional needs. Several Asian and Indian studies show micronutrient deficiencies among adolescents, which may lead to undernutrition and stunting [3-5].

The mid-day meal (MDM) concept has been initiated to provide one-third of caloric requirements and one-half of the protein requirements of the school-going children [6]. This concept of providing nutritional support through educational institutions was initiated by the Madras Corporation through school lunch program in 1925. In 1984, Gujarat became the first state to introduce this program. However, it is of utmost importance to understand that MDM is a supplement to ensure adequate growth and requirement and not the sole supply of the proteins and nutrients, especially in the adolescent growth period. The quality of MDM and its nutritional delivery is an important concern [7].

The authors of the research paper published in this issue of "Indian Journal of Child Health" have rightly identified the need to look into the impact of MDM on the growth of the adolescents [8]. It is often seen that children who are given MDMs lack the economic means to get a full balanced and nutritious diet at home. There is collinearity between the lower socioeconomic status and children going to schools that serve MDMs. As seen in this study, adolescents receiving MDMs are more undernourished as compared to their counter parts not receiving MDMs, who are from higher socioeconomic strata. Thereby, a matter of concern is whether "*those who get the mid-day meal are really the ones who deserve to get it?*"

This study being a cross-sectional methodology gives us a one-time "*snap-shot*" of the impact of MDM on the growth of adolescents. It looks into whether the undernutrition and stunting is more in MDM receiving adolescents (from government schools) as compared to non-MDM receiving adolescents (from private schools). The two comparison groups, being drawn from government and private schools, itself introduce a baseline confounding effect when it comes to assessing the nutrition status of the two groups. A further research into this matter would be to look into the aspects of home-based nutrition received from their daily food. Taking similar groups for comparison and taking into account the number of meals per month (percentage intake) and the economic capacity of their family/household to spend on nutritious food would give a clearer picture.

Although there is not much difference between the growth parameters of the MDM and non-MDM receiving adolescents, their actual dietary routine and the quantity of MDM taken as well as attitude to eat MDM and its frequency needs to be assessed. Instead of using proxy indicators such as government and non-government/

private schools, a clearer picture could be elicited by the actual household per capita income, and their percentage spending on the food.

A follow-up (longitudinal) study to look into associations with economic differences, area of stay, baseline health status, food habits, and MDM eating behavior with regression modeling for confounders can give a better idea of nutritional status and MDM. Studies on quality and quantity of the MDM and its nutritional delivery, perceptions of adolescents and their wards, and school teachers regarding MDM, methods for advocacy of the importance of MDM and cost-effectiveness studies on programmatic efforts may be undertaken.

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